

# Estes Valley Grading and Drainage Plans

Revision Date: October 21, 2010

## OVERVIEW

The requirements contained herein apply for:

1. Multi-family residential and all nonresidential construction;
2. Single-family homes on lots created after February 1, 2000. This excludes lots whose boundaries were adjusted after February 1, 2000;
3. Sites containing a slope of 20% or steeper;
4. Ridgeline protection areas;
5. Rock-fall hazard areas;
6. Areas that include significant historic drainage channels/ravines; and,
7. Waivers and/or modifications to driveway design standards set forth in Appendix D.

## PURPOSE AND INTENT

The intent of detailed grading and drainage plans is to ensure positive drainage away from the structure and that drainage will not negatively impact neighboring properties or watersheds, including possible erosion problems. This is a legal responsibility for the property owner. Contractors may also have legal liability.

Detailed plans will also ensure compliance with the Estes Valley Development Code (EVDC) Sections: 7.1 *Slope Protection Standards*; 7.2 *Grading and Site Disturbance Standards*; 7.7 *Geologic and Wildfire Hazard Areas*; and Appendix DIII *General Site Access*.

## ENGINEER REQUIRED

The grading and drainage plan must be stamped by a Civil Engineer licensed in the State of Colorado for the following development:

1. Single-family homes built on any portion of a site containing a slope 20% or steeper. Slope is to be measured from the points with the highest and lowest elevation within five feet of any area disturbed;
2. Foundation plans for single-family homes built on any portion of a site containing a slope of 20% or steeper and/or in rock-fall hazard areas;
3. Ridgeline protection areas (see also Section 7.1.C);
4. Rock-fall hazard areas (see also Section 7.7.F);
5. Lots that include significant historic drainage channels/ravines. The EVDC Stream and River Corridor Resource Map can be used as a reference; however, this does not show all significant historic drainage channels/ravines;
4. Grass swales of 3% or less;
5. Retaining walls four feet or taller (see also Section 7.2.B.6); and,
6. Driveways in excess of 12% grade.

## SUBMITTAL REQUIREMENTS

In addition to information required on the "Minimum Plot Plan Specifications" checklist, grading and drainage plans require the following:

- 1. *Retaining Walls*. Retaining wall details are required, and must include drainage details. Note top- and bottom-of-wall elevations at each location where the retaining wall steps up or down, and include the tallest point of the retaining wall. Stacked rock walls must include sufficient details to be constructed in the field (include size and shape of rock).

- \_\_\_2. *Existing Contours.* Existing two-foot contours must be provided for all disturbed areas. Contours for undisturbed areas must be shown when drainage in those areas impacts the disturbed area.

A site-specific survey prepared by a registered land surveyor is required for single-family homes in ridgeline protection areas, for single-family homes built on any portion of a site containing a slope of 20% or steeper, in rock-fall hazard areas, and drives greater than 12% slope.

Contours from Town base maps may be used in other instances.

- \_\_\_3. *Proposed Contours.* Proposed two-foot contours for all disturbed areas must be shown and must demonstrate positive drainage. Section 7.2.C requires that all disturbed areas be restored as natural-appearing land forms, with curves that blend in with adjacent undisturbed slopes, and contoured so they can be revegetated.

- \_\_\_4. *Spot Elevations.* Show critical spot elevations, as necessary to demonstrate positive drainage and the direction of flow.

Finished grade at all building corners must be provided.

A benchmark must be established and shown on the site plan with the elevation noted.

- \_\_\_5. *Finished Floor Elevations.* Note all finished floor elevations.

- \_\_\_6. *Top-of-Foundation Elevations.* The top-of-foundation elevation must be shown on the plan and must be consistent with the foundation plan. For buildings on slopes of 30% or steeper, elevations for stepped foundation walls must be shown.

The foundation plan must include top-of-foundation wall elevations for homes proposed on slopes 30% or steeper

- \_\_\_7. *Drainage Arrows.* Include drainage arrows that show how stormwater will be routed around buildings and where stormwater will exit the property. Stormwater cannot cause damage to any adjacent property. Drainage and erosion-control features needed to prevent damage must be included.

- \_\_\_8. *Drainage Facilities.* Proposed drainage facilities such as French drains or culverts must be shown on the plan and details such as slope noted.

- \_\_\_9. *Slopes.* Proposed slopes of 50% or steeper must be delineated.

## REVEGETATION

Section 7.2.C requires areas disturbed be revegetated within one growing season, and that revegetation is sufficient to provide erosion control. This section also requires that man-made slopes 25% or steeper use plant materials with deep rooting characteristics be selected to minimize erosion and reduce surface runoff, and that man-made slopes 50% or steeper use stabilization measures such as erosion netting or hydro-mulching.

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**Note:** This information was summarized from Estes Valley Development Code Sections 7.1 *Slope Protection Standards*, 7.2 *Grading and Site Disturbance Standards*, 7.7 *Geologic and Wildfire Hazard Areas*, and Appendix DIII *General Site Access*. These regulations can be accessed online at [www.estes.org/comdev/devcode/](http://www.estes.org/comdev/devcode/).